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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,794	07/26/2001	Gabriel Li	0325.00468	7469
21363	7590	06/17/2004	EXAMINER	
CHRISTOPHER P. MAIORANA, P.C.			LEFKOWITZ, SUMATI	
24840 HARPER			ART UNIT	PAPER NUMBER
ST. CLAIR SHORES, MI 48080			2112	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/915,794	Applicant(s) LI ET AL. 8	
	Examiner Sumati Lefkowitz	Art Unit 2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-20 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-12 and 14-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Shpantzer et al., 2002/0186435 (hereinafter Shpantzer).

- a. As to claims 1-4, Shpantzer discloses an architecture comprising a first circuit (note Figure 2b, element 240) configured to transmit one or more first serial streams (note Figure 2b, elements 245 and 220) in response to a plurality of first source data streams (note Figure 2b, elements 280) and recover a plurality of second source data streams (note Figure 2b, element 290) in response to one or more second serial streams (note [0058], other half of bidirectional fiber optic communication link), a second circuit (note [0058], other half of bidirectional fiber optic communication link) configured to transmit said one or more second serial streams in response to said plurality of second source data streams and recover said plurality of first source data streams in response to said one or more first serial streams; and one or more pairs of communication channels coupling said first circuit and said second circuit wherein said first and

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second circuits are configured to transmit simultaneously (note [0053-0061]), wherein said first circuit is further configured to transmit via a first communication channel of each of said one or more pairs communication channels; and said second circuit is further configured to transmit via second communication channel of each of said one or more pairs of communication channels, wherein number of serial streams is less than the number of source streams (note [0053-0061]), wherein the serial streams have a signaling rate that is an integer multiple of a data rate of the source data streams (note [0011-0012]).

b. As to claim 5, Shpantzer discloses that each of said communication channels comprises a simplex serial link comprising a transmission line selected from the group consisting of a fiber optic cable, a coaxial cable, twisted pair cable, microstrip transmission line, a stripline transmission line, and any other transmission line configured to carry said serial stream (note [0053-0057]).

c. As to claims 6-8, 12, and 14, Shpantzer discloses an apparatus comprising a first circuit (note Figure 2b, element 240) configured to generate one or more first interleaved streams (note Figure 2b, elements 245 and 220) in response to a plurality of first source data streams (note Figure 2b, element 280); and a second circuit (note Figure 2b, element 240) configured to recover a plurality of second source data streams (note Figure 2b, element 290) in response to one or more second interleaved data streams (note [0058], other half of bidirectional fiber optic communication link), wherein said one or more first interleaved data streams are carried by a first communication channel of each of one or more pairs of communication channels, wherein said one more second interleaved data streams are carried by a second communication channel of each of said one or more pairs of communication channels, wherein each of said communication

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channels comprises a simplex serial link comprising a transmission line selected from the group consisting of a fiber optic cable, a coaxial cable, twisted pair cable, microstrip transmission line, a stripline transmission line, and any other transmission line configured to carry said serial stream (note [0053-0061]), wherein the serial streams have a signaling rate that is an integer multiple of a data rate of the source data streams (note [0011-0012]).

d. As to claim 9, Shpantzer discloses that said first circuit comprises an interleaver circuit (note Figure 2b, element 210) configured to multiplex said plurality of first source data streams into said one or more first interleaved data streams (note Figure 2b, element 220).

e. As to claims 10 and 11, Shpantzer discloses that the second circuit comprises a bonding circuit configured to generate one or more bonded (aligned) data streams from said one or more second interleaved data streams, wherein said second circuit further comprises a de-interleaver circuit configured to demultiplex said plurality of second source data streams from said one or more bonded data streams (note Figure 9a, element 910, Figure 9b, elements 1145, 1105, Figure 10, element 1045, Figure 10a, element 1050 and [0100-0121]).

f. As to claims 15-20, the claimed limitations have already been discussed with respect to claims 1-3, 5-11, and 14 above.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shpantzer et al., 2002/0186435 (hereinafter Shpantzer) in view of Panahi et al., 6,272,130 (hereinafter Panahi).

As to claim 13, Shpantzer fails to disclose that said integer multiple is equal to the product of a number of source data streams carried by an interleaved data stream and a parallel-to-serial conversion ratio used to generate said serial stream from said interleaved data stream.

Panahi discloses that an integer multiple is equal to the product of a number of source data streams carried by an interleaved data stream and a parallel-to-serial conversion ratio used to generate the serial stream from the interleaved data stream (note column 4, line 34 – column 6, line 50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of an integer multiple equal to the product of a number of source data streams carried by an interleaved data stream and a parallel-to-serial conversion ratio used to generate the serial stream from the interleaved data stream, as Panahi teaches, in the system of Shpantzer

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teaches, so as to permit the multiplexing/demultiplexing of continuous data with bursty data and/or packetized data on a single tie line without disrupting the laminarity of the continuous data, as Panahi teaches at column 1, line 60 – column 2, line 37.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, as the prior art teaches or suggests interleaving data streams to increase throughput.

US PG-PUBS: 2002/0154610 Tiedemann, Jr. et al. 2002/0145787 Shpantzer et al.

US Patents: 6,614,796 Black et al. 6,226,296 Lindsey et al.

4,564,899 Holly et al. 4,488,293 Haussmann et al.

3,823,401 Berg et al.

European : EP 1107479 A2

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sumati Lefkowitz whose telephone number is 703-308-7790.

The examiner can normally be reached on Monday-Friday from 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached at 703-305-4815.

The fax phone numbers for the organization where this application or proceeding is assigned are:

703-746-7238 for After-Final communications

703-872-9306 for Official communications

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703-746-5661 for Non-Official/Draft communications

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



Sumati Lefkowitz
Primary Examiner
Art Unit 2112

sl
June 14, 2004